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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,638	03/29/2004	Jeffrey Shane Reiter	50103-554	9583

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SEAGATE TECHNOLOGY LLC
c/o MCDERMOTT WILL & EMERY LLP
600 13TH STREET, NW
WASHINGTON, DC 20005-3096

EXAMINER

MCDONALD, RODNEY GLENN

ART UNIT	PAPER NUMBER
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1753

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/810,638

Applicant(s)

REITER, JEFFREY SHANE

Examiner

Rodney G. McDonald

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-8, 11-14 and 18-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Hartig (US PG PUB 2004/0118678 A1).

Regarding claim 1, Hartig teach an apparatus adapted for treating or processing at least one substrate/workpiece in a plasma. (Page 3 paragraph 0023) Hartig teach utilizing a chamber 12 defining an interior space. (Page 3 paragraph 0023) Hartig teach a means 16 for generating a plasma in the interior space of the chamber. (Page 3 paragraph 0023; Page 4 paragraph 0034) Hartig teach mounting means adapted for positioning at least one substrate/workpiece in the interior space of the chamber for receiving treatment of the plasma. (Page 3 paragraph 0031) Hartig teach a gas supply means 18 for injection gas(es) into the interior space of the chamber. (Page 3 paragraph 0023) An inlet portion extends exteriorly of the chamber. (See Figs. 1 and 2) Hartig teach an outlet portion extends into the chamber and includes at least one

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outlet orifice for injecting gas(es) into the interior space. (See Figs. 1, 2; Page 4 paragraph 0033) Hartig teach means for applying a bias potential to the gas supply means for suppressing plasma formation at the at least one outlet surface. (Page 4 paragraph 0034; Plasma localized at the target)

Regarding claim 2, Hartig teach means (i.e. insulator) for electrically isolating the gas supply means from the chamber and the means for generating the plasma. (Page 4 paragraph 0034)

Regarding claim 3, Hartig teach the outlet portion of the gas supply means extending through an electrically insulated opening in a wall of the chamber. (Page 4 paragraph 0034)

Regarding claim 4, Hartig teach the means for applying the bias potential comprises means for applying a DC bias potential. (Figs. 1 and 2; Page 3 paragraph 0029)

Regarding claim 5, Hartig teach the means for applying a bias potential comprises means for applying a selected polarity of DC bias potential of up to about 1,000 V. (Page 4 paragraph 0037; Figs. 1, 2 ; i.e. 0.1'–5 kV)

Regarding claim 6, Hartig teach the interior of the chamber to be maintained at a reduced pressure. (Page 3 paragraph 0025)

Regarding claim 7, Hartig teach sputtering or reactive sputtering. (Page 3 paragraph 0023, paragraph 0027; Page 4 paragraph 0033)

Regarding claim 8, Hartig teach sputtering or reactive sputtering and having one cathode/target assembly. (Page 3 paragraph 0023, paragraph 0027; Page 4 paragraph 0033)

Regarding claim 11, Hartig teach a method of treating or processing at least one substrate/workpiece in a plasma comprising the steps of providing an apparatus adapted for treating or processing at least one substrate/workpiece in a plasma. (Page 3 paragraph 0023) Hartig teach providing a chamber 12 defining an interior space. (Page 3 paragraph 0023) Hartig teach providing mounting means adapted for positioning at least one substrate/workpiece in the interior space of the chamber for receiving treatment of the plasma. (Page 3 paragraph 0031) Hartig teach providing a gas supply means 18 for injection gas(es) into the interior space of the chamber. (Page 3 paragraph 0023) An inlet portion extends exteriorly of the chamber. (See Figs. 1 and 2) Hartig teach an outlet portion extends into the chamber and includes at least one outlet orifice for injecting gas(es) into the interior space. (See Figs. 1, 2; Page 4 paragraph 0033) Hartig teach providing means (i.e. insulator) for electrically isolating the gas supply means from the chamber and the means for generating the plasma. (Page 4 paragraph 0034) Hartig teach providing a means 16 for generating a plasma in the interior space of the chamber. (Page 3 paragraph 0023; Page 4 paragraph 0034) Hartig teach applying a bias potential to the gas supply means for suppressing plasma formation at the at least one outlet surface. (Page 4 paragraph 0034; Plasma localized at the target) Hartig teach treating/processing the at least one substrate/workpiece in the plasma. (Page 3 paragraph 0023, paragraph 0027; Page 4 paragraph 0033)

Regarding claim 12, Hartig teach maintaining the interior of the chamber at a reduced pressure. (Page 3 paragraph 0025)

Regarding claim 13, Hartig teach sputtering or reactive sputtering. (Page 3 paragraph 0023, paragraph 0027; Page 4 paragraph 0033)

Regarding claim 14, Hartig teach sputtering or reactive sputtering and having one cathode/target assembly. (Page 3 paragraph 0023, paragraph 0027; Page 4 paragraph 0033)

Regarding claim 18, Hartig teach providing a gas supply means 18 for injection gas(es) into the interior space of the chamber. (Page 3 paragraph 0023) An inlet portion extends exteriorly of the chamber. (See Figs. 1 and 2) Hartig teach an outlet portion extends into the chamber and includes at least one outlet orifice for injecting gas(es) into the interior space. (See Figs. 1, 2; Page 4 paragraph 0033) Hartig teach providing means (i.e. insulator) for electrically isolating the gas supply means from the chamber and the means for generating the plasma. (Page 4 paragraph 0034) Hartig teach providing a means 16 for generating a plasma in the interior space of the chamber. (Page 3 paragraph 0023; Page 4 paragraph 0034)

Regarding claim 19, Hartig teach applying a DC bias potential. (Page 3 paragraph 0029)

Regarding claim 20, Hartig teach the means for applying a bias potential comprises means for applying a selected polarity of DC bias potential of up to about 1,000 V. (Page 4 paragraph 0037; Figs. 1, 2 ; i.e. 0.1 –5 kV)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9, 10, 15, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartig (US PG PUB 2004/0118678 A1) in view of Zejda (U.S. Pat. 5,228,968).

Hartig is discussed above and all is as applies above. (See Hartig discussed above)

The differences between Hartig and the present claims is that the apparatus comprising a spaced-apart pair of cathode/target assemblies and the mounting means adapted to position at least one substrate/workpiece in the space between the pair of cathode/target assemblies is not discussed (Claim 9), the gas supply means being adapted for injecting the gas(es) into the space between the pair of the cathode/target assemblies is not discussed (Claim 10), the step of providing a pair of spaced apart cathode/target assemblies, mounting at least one substrate/workpiece in the space between the pair of spaced-apart cathode/target assemblies, and injecting the gas(es) into the space between the pair of spaced-apart cathode/target assemblies is not discussed (Claim 15), and mounting/positioning at least one disk-shaped

substrate/workpiece for a magnetic or magneto-optical (MO) recording medium is not discussed (Claim 16).

Regarding claim 9, Zejda teach in Fig. 4 a pair of spaced apart cathode/target assemblies and presumably mounting means adapted to position at least one substrate/workpiece in the space between the pair of cathode/target assemblies. (See Fig. 4; Column 3 lines 32-44)

Regarding claim 10, Zejda teach in Fig. 4 locating gas supply means in the space between the cathode/target assemblies for inletting gas between the cathode/target assemblies. (See Fig. 4; Column 3 lines 32-44)

Regarding claim 15, Zejda teach the step of providing a pair of spaced apart cathode/target assemblies, mounting at least one substrate/workpiece in the space between the pair of spaced-apart cathode/target assemblies, and injecting the gas(es) into the space between the pair of spaced-apart cathode/target assemblies. (See Fig. 4; Column 3 lines 32-44)

Regarding 16, Zejda teach coating magnetic disks. (Column 1 lines 57-60)

The motivation for utilizing the features of Zejda is that it allows for coating evenly both sides of the substrate. (Column 1 lines 43-45)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Hartig by utilizing the features of Zejda because it allows for coating evenly both sides of the substrate.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hartig in view of Zejda as applied to claims 9, 10, 15, 16 above, and further in view of Suzuki et al. (U.S. Pat. 6,627,253).

The difference not yet discussed is reactive sputtering of a ferromagnetic target material in an oxygen-containing plasma to deposit an oxygen-containing ferromagnetic layer on each surface of the at least one substrate/workpiece. (Claim 17)

Regarding claim 17, Suzuki et al. teach sputtering a ferromagnetic target material in an oxygen-containing plasma to deposit an oxygen containing ferromagnetic layer on each surface of the at least one substrate/workpiece. (Column 8 lines 58-67; Column 9 lines 1-18)

The motivation for utilizing the features of Suzuki et al. is that it allows for reducing the media noise of the magnetic layer. (Column 7 lines 48-49)
Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the features of Suzuki et al. because it allows for reducing the media noise of the magnetic layer.

Response to Arguments

Applicant's arguments filed February 20, 2007 have been fully considered but they are not persuasive.

In response to the argument that the prior art does not teach a means for generating a plasma in the interior space of the chamber and means for applying a bias potential to the gas supply means to suppress plasma formation, it is argued that Hartig teaches a means in the form of a negative pole that applies power to the cathode to

generate a plasma in the interior space of the chamber. Hartig also teaches a means in the form of a positive pole to apply power to the gas supply system. Since Hartig teach providing a bias potential of 1,000 V to the gas supply system which is the same as Applicant's applies voltage plasma is inherently suppressed. Also since Hartig teach the system to be a magnetron sputtering system the plasma would be confined by the magnets. Assuming arguendo that the positive and negative poles are not viewed as separate means as required by the claims Hartig in paragraph 0029 teach that "one or more power sources" provide power to the motors as well as positive charge to the gas supply and negative charge to the target. "One or more power sources" qualifies as separate means required by the claims. (See Hartig discussed above)

In response to the argument that the prior art does not teach generating a plasma in the interior space of the chamber via the means for generating a plasma and applying a bias potential to the gas supply means to suppress plasma formation at the at least one outlet orifice, it is argued as discussed above that Hartig provide means for generating a plasma and applying a bias potential to the gas supply means to suppress plasma formation at the at least one outlet orifice. (See discussion immediately above)

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney G. McDonald whose telephone number is 571-272-1340. The examiner can normally be reached on M- Th with Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Rodney G. McDonald
Primary Examiner
Art Unit 1753

RM
April 9, 2007